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ABSTRACT

Observation of child language development is just one way to study how language changes over time. Developmental psycholinguistics shares much common ground with historical linguistics and with studies of languages in contact and the evolution of pidgins and creoles. By studying the way language changes, this paper focuses on clarifying the psycholinguistic processes that make language possible. Four basic requirements of language are to be: (1) clear; (2) humanly processible in ongoing time; (3) quick and easy; and (4) expressive. Each of these factors is discussed in the context of change, seeking similarities in different kinds of diachronic stories in order to understand the nature of the changes themselves. Consequences of these factors are traced in four types of linguistic change: development of language in children; change of established languages over time; changes occurring in one language resulting from contact with another in minds of bilingual speakers; and changes occurring when a pidgin becomes a native language and expands into more mature communicative functions (i.e., the processes of creolization and decreolization). Examples from several languages are included to illustrate the points. (CHK)

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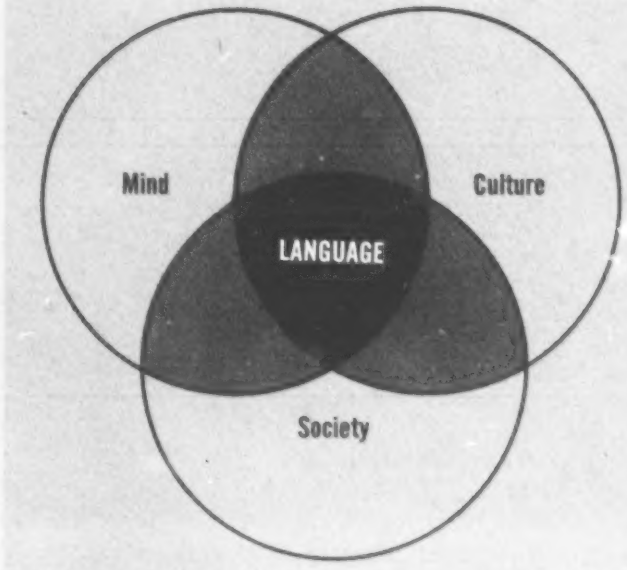

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LANGUAGE CHANGE IN CHILDHOOD AND IN HISTORY

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Language Change in Childhood and in History[1]

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The development of language in childhood is but one of several ways of studying how language changes over time. Developmental psycholinguistics, in dealing with diachronic processes in the individual, shares much common ground with historical linguistics, with studies of languages in contact, and with the investigation of the evolution of pidgin and creole languages. In all of these instances, it has become clear that the study of language during its unstable or changing phases is an excellent tool for discovering the essence of language itself. At the same time, the more we know about what language is, the more we know about the mind and its growth. The structure of language is constrained by psycholinguistic processes of perception, memory, and cognition, by sociolinguistic processes, and by the development of these processes in childhood. My focus here is on clarifying the psycholinguistic processes which make language possible. And I propose to carry out this task by studying the way language changes: the way it changes as the speech of the child approaches the speech of his community, or as the speech of one community approaches that of another community, or as a language system becomes established and keeps adjusting to perturbations from within and without. In a remarkable way, language maintains a universal character across all of these continuing changes, so that the more it changes, the more sure we can be of what it is.

One cannot separate a theory of language change from a theory of language structure. And both change and structure are bound by the same psycholinguistic and sociolinguistic constraints imposed by the processing of speech in real time and in social settings. Both change and structure are constrained by the uses to which language is put. Our investigation, therefore, must begin with a characterization of the cognitive and communicative determinants of the nature of human language.

The speaker of a language wants to express himself clearly, efficiently, effectively, and reasonably quickly; and the listener wants to quickly and efficiently retrieve a clear and informative message. These needs and constraints of speaker and listener determine the structure of language. I conceive of four basic ground rules which a communicative system must adhere to if it is to function as a full-fledged human language. Let me present them as imperatives to this creature we are all studying--imperatives to the semi-mythical being whom I'll refer to simply as Language (with a capital L). The four charges to language are: (1) Be clear. (2) Be humanly processible in ongoing time. (3) Be quick and easy. (4) Be expressive.

The first charge, to be clear, means that the surface structures of Language must not be too different in form and organization from the semantic structures which underlie them. I stated this charge several years ago as an operating principle of child language (Slobin, 1973; Operating Principle E): "Underlying semantic relations should be marked overtly and clearly." The universals of child language which result from that operating principle, as I will show in a while, also appear in other situations of language change. That is, there is a tendency for Language to strive to maintain a one-to-one mapping between underlying semantic structures and surface forms, with the goal of making messages easily retrievable for listeners. To be "clear," in the way I am using the term here, is to strive for semantic transparency.

The second charge, to be humanly processible in ongoing time, means that Language must conform to strategies of speech perception and production. Greenberg and others have summarized the sets of linguistic features which typically cohere in languages of given types, such as the positioning of nominal and verbal modifiers on the basis of dominant word order of a language. Recent work by psycholinguists on perceptual strategies (cf. Fodor, Bever, & Garrett, 1974), along with studies of computer processing of language and various process-oriented models of language, suggest that perceptual and productive rules can account for the range of possible manifestations of surface syntax. Much of the work in experimental psycholinguistics--both adult and child research--has been devoted to characterizing mechanisms of language performance, and is directly relevant here.

The third charge to Language, to be quick and easy, allows for human

weakness and perversity. Somehow it's hard to keep languages from getting blurry. We seem to try to blur and smudge phonology wherever possible, to delete and contract surface forms, to conflate underlying forms in surface expression. Perhaps the old arguments of least effort still play some role here. At any rate, there are communicative needs to get a lot of information in before the listener gets bored or takes over the conversation; and there are short-term memory constraints to get a message across before the speaker or listener loses track of what is going on. And so, contrary to the charges to be clear and processible, there is also a charge to cut corners.

The fourth charge to Language, to be expressive, has two important aspects: to be semantic, and to be rhetorical. By "semantic" I mean the expression of propositional and referential content. There is a universal set of basic conceptual categories which must be expressed in every language. These are the categories which are most salient to the child, and which are essential to every communicative act. Beyond the set of most salient concepts, there is a hierarchy of increasingly complex notions. To be minimally expressive semantically, a language must have means of encoding at least the universal core of salient concepts and relations; to be fully expressive, a wider and more complex range of notions must be encodable.

The charge to be rhetorical takes account of the fact that Language is used for more than conveying logical propositions and referential information. Language must provide alternate ways of expressing notions, and must provide means for compacting semantic content on the surface, in order for the speaker to communicate well--that is, to communicate effectively, engagingly, appropriately, and so forth. The speaker must be able to direct the listener's attention, to take account of his knowledge and expectations; the speaker must have means for surprising, impressing, playing up to or putting down his interlocutor; he must have linguistic means of expressing relations of status and affiliation between himself and his conversational partner.

To be fully expressive semantically and rhetorically increases the complexity both of communicative intentions and of surface structure, thus putting strains on the charges to be clear and to be processible.

Language is always under competing pressure to conform to all four of

these charges. Because the pressures are inherently competitory, languages are constantly changing, and universals, except for those which are principles of change itself, always refer to idealized static language situations.

Child language is at first most influenced by the first two charges--to be clear and to be processible. The child is minimally pressured to transmit a densely structured message in a compact time interval or to adapt his communication to the pragmatics of a wide range of interaction situations. Child speech is close to underlying semantic intent in form and is guided by the most basic processing rules. In this regard it is similar to contact vernaculars or pidgin languages--and indeed, turning the comparison around, David Smith (1973, p. 29]) and other students of pidgin and creole languages have pointed out that child language is "pidginized," in that both child language and pidgins are characterized by relatively simple form and restriction of function in comparison with more developed linguistic systems--including creoles, language of older children, and standard languages.

Creoles and standard adult languages must attend more closely to the third and fourth charges as well: to be quick and easy and to be fully expressive. It is these two needs which provide the impetus for language change, while the first two needs--to be clear and processible--constrain the directions of change of a given language system within a small range of possibilities. A gain in compactness or expressiveness of communication is often purchased at the expense of ease of processing or semantic transparency of the message. The tension between these four factors is present in all situations of language change: child development, historical change, language contact, depidginization or creolization. The speech system of an individual or community at any point in time can be characterized in terms of these four factors or goals. A full definition of the possible ways of carrying out these goals simultaneously would be a full exposition of linguistic universals, and would answer the question: "What does a linguistic system have to be in order to qualify as a possible native language?" Only languages which carry out these four goals will be learnable, useable, and potentially available for all mature communicative functions.

I would like now to discuss these four goals of Language in the context of change. In so doing, I want to avoid the question of the source of change

and the complex issue of the degree to which children are responsible for linguistic change. My aim is to make a sketch of the change process itself, trying to find similarities in several different kinds of diachronic stories. By examining how each of these charges is carried out under conditions of change, I believe we will arrive at a clearer notion of the nature of the charges themselves.

I will discuss the four charges separately, though many of the diachronic situations I will present are obviously influenced by the joint action of several of the charges. Let me try to trace out the consequences of each of the charges in four types of linguistic change: the development of language in children, the change of established languages over time, the changes occurring in one language as a result of contact with another in the minds of bilingual speakers, and the changes which occur when a pidgin becomes a native language and expands to fulfill more and more mature communicative functions--that is, the processes of creolization and decreolization.

To remind you of the terminology: pidgin languages are contact vernaculars used between speakers of different native languages for specialized communication. Such a language can be minimally simple or quite elaborated, but it maintains the characteristic that none of the speakers has acquired it as a first language. A pidgin with native speakers is called a creole. Pidgins undergo definable changes in the course of creolization. As a creole expands and differentiates to carry out a full range of linguistic needs of a community, it undergoes further definable changes. This process of decreolization presumably results in the emergence of a new and complete language. The differences between a pidgin and a creole provide important clues as to what Language must do in order to fully carry out the four charges. It has been repeatedly pointed out (e.g. Bickerton, 1975) that a pidgin cannot function as a suitable native language because it is too slow in tempo and fails to make necessary semantic and pragmatic distinctions, and I will examine this issue as I go along.

So what we have available for consideration here is a range of linguistic systems--from minimal to maximal--and some information about separate instances of change, both ontogenetic and diachronic. In the space of this paper I can only sample from these instances, pointing to an eventual unified theory of Language and language change.

BE CLEAR

Child Language

In my earlier work on "operating principles" of child language (1973), I cited numerous examples of attempts by children to maintain acoustically salient and isolable surface expressions of semantic entities, preferring a one-to-one mapping of content and form wherever possible. For example, when English-speaking children discover that contracted auxiliaries can be analyzed they often go through a period of exaggerated analysis, using forms like "I will," "I will not," and "do not," where adults would use "I'll," "I won't," and "don't" (Bellugi, 1967). When Italian children discover the role of subject pronouns, they go through a phase in which the normally optional pronoun is always expressed (Bates, 1974). Zero morphemes are avoided in the acquisition of inflectional paradigms: the English-speaking child prefers "hitted" to "hit" for the past tense. The Arabic-speaking child uses the plural in expressions with numeral and noun for all numbers, contrary to the input language (Omar, 1970). Slavic-speaking children express each grammatical case with an inflectional suffix, even though the language leaves some cases unmarked in some genders. Lexical causatives are often replaced by periphrastic expressions, as the English "make dead" for "kill." So there seems to be a general tendency in child language away from synthesis, contraction, and deletion, and towards more analytic expressions wherever possible. Many more examples could be added.

Furthermore, systems which maintain the principle of semantic clarity are also easier to acquire. In our cross-linguistic research at Berkeley we are comparing the acquisition of English, Italian, Serbo-Croatian, and Turkish as native languages. The Turkish system of agglutinative inflectional morphology is remarkably transparent. There are strings of clearly segmentable suffixed morphemes, each bearing one element of meaning. The system is totally regular--there are almost no exceptions to general rules, and there are no arbitrary sub-classes on the basis of features such as grammatical gender of phonological shape of stem. Each inflectional morpheme is syllabic and acoustically salient. For example, consider the following portion of the nominal inflectional paradigm:

Partial Turkish inflectional paradigm:

el 'hand'
-im 'first person possessive'
-ler 'plural'
-de 'locative'

Combinatorial possibilities:

elim 'my hand'
eller 'hands'
ellerim 'my hands'
elde 'in hand'
elimde 'in my hand'
ellerimde 'in my hands'

This is an exceptionally neat example of an analytic paradigm, and is a joy to descriptive linguists, who use it as a model in introductory textbooks. It is apparently a joy to the Turkish child as well, and the entire system is mastered well before the age of two.

The Serbo-Croatian inflectional system contrasts sharply. It is a classic Indo-European synthetic muddle, with the choice of nominal case ending influenced by issues of grammatical gender, animacy, number, and phonological shape of stem. There are many irregularities, a great deal of homonymy, and scattered zero morphemes. For example, whereas the Turkish accusative inflection is a uniform suffix, the Serbo-Croatian accusative--considering the singular noun only (since it will be different for plurals, and different again for adjectives)--is realized as a final -u for feminine nouns, -a for masculine animate nouns, and zero for other masculine and neuter nouns. Those same endings appear elsewhere in the paradigm as well; for example, -u is also a dative or locative ending in some genders; the final -a of masculine animate accusative is also the feminine nominative; and so on. Little wonder that the Yugoslav child does not master such a system until about age five--three years or so later than the Turkish child. The first stage of Serbo-Croatian however, like the first stage of Russian and of German and other highly inflected Indo-European languages, adheres to the

charge to be clear. The child chooses a single suffix for each grammatical case and uses it in all instances, ignoring gender, irregularities, and so forth. In effect, he has made his Indo-European language as analytic as possible, and then spends several years accepting the morphophonemic complexities of his mother tongue. The principle of marking semantic relations by nominal suffixes is as accessible to the Indo-European child as to the Turkic (or Japanese or Korean or Finnish or Hungarian) child. It is the violation of the charge to be clear which slows up the Indo-European child in his course of acquisition. And the Indo-European languages tend to collapse and simplify their inflectional systems over time or in bilingual contact situations, whereas the Turkic system of agglutinative inflectional morphology has remained stable across a great range of time and contact situations.

The picture is exactly reversed, however, in regard to syntax. Indo-European-speaking children acquire means for inserting one sentence into another at a very early age. Our Yugoslav children were forming relative clauses, for example when they were two years old. Here it is Indo-European which maintains a clear mapping from underlying semantics to surface form. Consider an example from Serbo-Croatian. A two-year-old girl said the equivalent of "I want doll that daddy bought." The two underlying sentences are well-preserved on the surface, with the minimal adjustment required by a relative pronoun and deletion of a repeated object in the embedded sentence. The comparable form in Turkish syntax is not mastered until age five. The reason is that, in this case, it is Turkish which is maximally opaque. The details are too complex to summarize, but, basically, the predicate of the embedded sentence must be turned into a participle, preposed, and possessed by its agent, resulting in something which could be roughly paraphrased as "Daddy's boughten doll I want."

Baba-	nın	al-	dığ-	ı	bebeğ-	ı	istiyorum.
father-	genitive	buy-	object relative particle-	possessive suffix	doll-	definite direct object inflection	I-want

One can expect late-acquired and difficult constructions such as this to be weak points in a language, and I will show later that Turkic relative clauses

and verb complement constructions are most vulnerable to change in bilingual contact situations. But first let us look at the charge to be clear in the light of historical linguistics.

History

Similar tendencies to maintain a one-to-one mapping between semantics and syntax can be seen in the historical evolution of Language, though always in competition with the charge to be quick and easy. Robin Lakoff (1972) has characterized Indo-European drift as a "metacondition on the way the grammar of a language as a whole will change" (p. 178). She discusses a number of general developments in Indo-European, such as the obligatory use of anaphoric, non-emphatic subject pronouns, the use of prepositions instead of case endings, the development of periphrastic causatives, inchoatives, auxiliaries, and so forth. All of these developments move away from oversynthesis and towards greater semantic transparency. She characterizes this metacondition as an instruction to the language "to segmentalize where possible." She is not willing to ascribe universal or psychological significance to this principle, because it is not manifested in all instances of language change. But I would argue that whenever a language has gone too far from the principle of one-to-one mapping or semantic transparency in some area of its structure, the tendency to segmentalize will assert itself--just as it does in child language and, as I will point out, in pidgins. The other two charges--temporal compactness and expressiveness--strive towards synthesis, however, As a result, Language constantly fluctuates between the poles of analyticity and syntheticity, since none of the charges can be ignored. I will return to the question of the Linguistic Cycle later, in relation to the third charge. For now I just want to point out that there seems to be a universal tendency away from oversynthesis, and that this tendency is manifested both ontogenetically and diachronically.

Contact

When two languages are in contact in the minds of bilingual speakers, the charge to be clear influences what will be borrowed from one language into the other. Weinreich (1953), in his classic survey of languages in contact, suggested that a language will borrow those forms needed to replace

a zero morpheme or a morpheme which is acoustically not very salient in its own system prior to contact (p. 33). For example, the comparative in Ukrainian "is expressed by an unstressed bound suffix (involving frequent root modifications)" (p. 34). The Romanian comparative is a simple preposed particle, mai, meaning 'more'. In a Ukrainian-Romanian bilingual situation, the Romanian particle entered Ukrainian speech, resulting in forms equivalent to "more older"-- a clearer marking of underlying semantics and quite reminiscent of child speech. (One might also note the extension of the analytic comparative and superlative in English, gradually replacing inflectional forms. We no longer can say "elegantest," as John Milton did, and even "profounder" or "pleasanter," to my ear, should be replaced by "more profound" and "more pleasant" (cf. Barber, 1966).)

Weinreich clearly states a version of our position in discussing grammatical transfer between languages: "Significantly, in the interference of two grammatical patterns it is ordinarily the one which uses relatively free and invariant morphemes in its paradigm--one might say, the more explicit pattern--which serves as the model for imitation" (p. 41). He cites several unrelated cases in which a language using a bound possessive morpheme has replaced it with a pronominal possessive construction. This has happened to Estonian under German influence, to Amharic in contact with Cushitic, and to Israeli Hebrew in interaction with Yiddish and other Indo-European immigrant languages.

The preference for clear mapping of underlying forms is evident not only on the morphological level, as I pointed out in comparing the acquisition of relative clause constructions in Indo-European and Turkish. You will recall that the Turkic languages have extraordinarily complex means for the surface realization of structures in which one sentence is subordinated to another. (I offered the example of object relative clauses; similar arguments could be made in regard to subject relatives and verb complement constructions.) One would expect that Turkic speakers would prefer more transparent means of expressing such constructions as relative clauses. There are many examples of long-term interaction between Turkic and Indo-European languages, since the two language types are in contact over a long belt, stretching from Central Asia into the Balkans. In every case which I

have investigated, the Turkic language always borrows or invents a relative particle on the model of the Indo-European contact language, while keeping the Turkic inflectional morphology intact. This has happened to Azerbaijani under the influence of Persian, to Karaite Turkish in the Crimea under Russian influence, and in several other cases. Circumlocutions to avoid relative clause constructions are common in child speech and informal speech in Turkey, resulting in forms closer to the Indo-European model--something like: "Well daddy bought a doll, huh? I want that one." (As I will point out later, such forms are strikingly similar to the new means of relativization currently evolving in Tok Pisin, a New Guinea pidgin which is presently creolizing.)

This phenomenon suggests a general principle of language contact: Forms which are late to be acquired by children are presumably also relatively difficult for adults to process, and should be especially vulnerable to change. Such forms will be modified or replaced in a contact situation if the neighboring language has semantically equivalent forms which are acquired at an earlier age. Thus relative age of acquisition can be taken as an index of psycholinguistic complexity, and can be used to predict degree of resistance of a form to change. Kiparsky has phrased a similar rule for historical linguistics: "Basically, we can say that rules are susceptible to loss if they are hard to learn" (1971, p. 627).

This generalization is restricted, however, by the other charges to Language: Sometimes (as Ferguson has pointed out to me in regard to Amharic) a complex form can be maintained or even borrowed for expressive purposes--to mark the status or social affiliation of the speaker, or the style of the discourse. And, furthermore, change must be consistent with the general typological features of the language in order to maintain processibility. It would be difficult for an Indo-European language to borrow agglutinative suffixes without altering many other characteristics of its structure, though far-reaching typological changes have occurred historically.

Pidgin/Creole

Paul Kay and Gillian Sankoff characterize pidgin language as "derivationally shallower than natural languages and reflect(ing) universal deep

(=semantic) structure in their surface structures more directly than do natural languages" (1974, p. 66). This sounds like maximal adherence to the charge to be clear, and bears a strong similarity to many characterizations of child language. Kay and Sankoff define this goal of Language in terms of surface structures which are "in conformity with universal deep structure." Pidgins and early stages of creoles are maximally analytic, having no inflectional morphology at all and using separate lexical items or particles like adverbs and prepositions, along with word order, to express underlying semantic relations. When relieved of the pressure of the third and fourth charges, then, Language reflects the first charge most clearly.

BE PROCESSIBLE

I have only discussed the first of the four charges to Language so far. The charge to be clear requires a fine intermeshing of semantic and syntactic processes. The second charge, to be processible, raises issues of producing and perceiving speech in real time. Linguists and psycholinguists are speaking more and more about perceptual strategies, and most of what I will have to say here deals with the receptive end of communication. Similar short-term constraints, of course, apply to the speaker as well as the listener, but this area of psycholinguistics has been less well elaborated.

Every change in a language system must conform to the limitations of processing strategies. It is becoming clear that such strategies are of necessity interlocked, so that a change at one point in a system necessitates changes elsewhere in order that the meaning of messages can be encoded or decoded within the capacity of a human language processor.

Child Language

Much of recent experimental work with child language has been devoted to strategies for speech perception and comprehension. I have formulated "operating principles" which rely on a natural tendency to look for meaning at the ends of words and in the order of morphemes (Slobin, 1973). Bever (1970) and others have proposed developmental sequences of word order strategies. And Fodor, Bever, and Garrett (1974) have elaborated a general

psycholinguistic model based on the proposition that languages provide surface cues to underlying structures precisely because such cues are required for perceptual strategies involved in the ongoing parsing of sentences.

Developmentally, we know that some perceptual strategies are more accessible than others. It is apparently easier to attend to postpositions than to prepositions, to continuous rather than discontinuous structures, and so forth (Slobin, 1973). Constructions which can be signalled by special particles, like relative pronouns, are more readily processed by young children if those markers are not deleted. The child's attempts to be clear in his own speaking--such as avoiding contractions, overusing prepositions, and placing abnormal stress on inflectional morphemes--probably serve the function of keeping his ongoing speech more perceptible to himself, that is, to keep him from losing track of where he is in a developing utterance. At the same time, as we have discovered in our cross-linguistic research, some perceptual strategies appear to be equally accessible at the beginning of grammatical development--such as attention to either word order or inflections in guiding sentence interpretation.

But such facts cannot account for linguistic change, because they do not apply singly, but in interrelation with one another. A VSO language, for example, will not develop postpositions, even if they are more perceptible than prepositions, because other perceptual strategies require that a language of this type be prepositional. The contribution from developmental and experimental psycholinguistics must be to define the limits of perceptibility and learnability of grammatical structures, thus defining the range of possible languages and directions of change.

History

When a language is in the process of change, however, the perceptual strategies most accessible to children should play a role in determining the direction of change. Charles Li and Sandra Thompson (1974), for example, note that Chinese is in the process of moving from a VO to an OV language. The change is not complete, and for some expressions forms of two types are present. For example, there are co-occurring VO and Preposition-OV forms, such as:

Nǐ qù nǎr? 'You go where?' Nǐ dào nǎr qù? 'You to where go?'

The latter form provides more surface cues to underlying structure, in that the preposition can help guide sentence interpretation strategies. If the new OV form with preposition is more accessible to basic perceptual strategies, we should expect it to be preferred in acquisition. The direction of linguistic change seems to be one of enhancing processibility.

Bever and Langendoen (1971) have made the most elaborate argument in this regard, in tracing the history of relative clause constructions from Old English to Modern English. They suggest that, with the decline of nominal inflections, perceptual confusions occurred in various relative clause constructions, eventually resulting in rew restrictions on the use of relative pronouns in order to avoid such confusions. At each point in its history the language has apparently been strongly constrained by the charge to conform to perceptual strategies.

In the space I have here I can only hint at the importance of perceptual strategies in accounting for linguistic universals, but the ramifications of this point should be of great interest to students of child language development. A thorough attempt to relate a set of typological universals to perceptual strategies has recently been made by Kuno (1974), in last winter's Linguistic Inquiry. It is too lengthy to summarize here, but it is important to me in that he has appealed to perceptual constraints on the processing of self-embedded constructions to account for apparently universal relations between basic word order typology and the positioning of relative clauses, nominal modifiers, and conjunctions. For example, SOV languages are characterized by the use of postpositions and prenominal relative clauses. Kuno suggests that these clusters of typological features function to avoid center-embedded constructions as much as possible, thus reducing overall psycholinguistic complexity in the language.

A simpler example to present here is one offered by Lehmann (1973). He argues that the primary concomitant of the verb is the object. Although he does not offer a perceptual argument, one could say that the verb and its object constitute a kind of perceptual Gestalt which resists interruption. In a language which is in a consistent stage of its development one finds a distribution of elements which guarantee the integrity of this Gestalt: in

an OV language, verbal modifiers follow the verb and nominal modifiers precede the noun, keeping O and V together; in a VO language, verbal modifiers precede the verb and nominal modifiers follow the noun, again preserving the Gestalt of verb and object. Languages which are inconsistent in regard to the placement of verbal and nominal modifiers are probably undergoing change. One would expect that children learning such languages would apply natural perceptual strategies, with the eventual effect of removing the inconsistencies. That is, the parts of a linguistic system which are not in accord with universal principles of language processing should pose difficulties to the child, and should show the greatest variation and protraction in individual ontogenetic development.

There are at least two ways in which a language can become unclear perceptually. In the simpler case, phonological change or fusion can make some distinctions less distinct acoustically. In such cases, perceptual clarity is re-established by extending the use of existing forms, such as the English relative pronoun or the Romance prepositions and articles, or by introducing new forms consistent with the overall structure of the language. For example, the Turkic languages are OV and agglutinative, and, accordingly, are suffixing and postpositional in type. Repeatedly in their history, postpositions become reduced to noun suffixes, followed by the introduction of new postpositions. As long as the basic word order type remains stable, and the overall system is consistent, the perceptual and processing strategies produce the same result over time: new particles in the same position and bearing the same meaning as old particles whose acoustic clarity has eroded.

But a language can also become unclear perceptually when it is changing in basic word order type, as in the example of Chinese. In such cases, the perceptual strategies operate to ensure consistency in the overall system. When Proto-European presumably was in a transition from an OV to a VO language (Lehmann, 1973), there must have been a period in which postpositions were very difficult to process, and speakers had no recourse but to indicate the relevant notions prepositionally in order for their speech to adapt to the inherent real-time constraints on programming and interpreting utterances.

Contact

There certainly are cases in bilingual situations where such attempts to maintain a consistent set of processing rules can be demonstrated. Apparently in a long-term bilingual or multilingual situation, where speakers must constantly use two or more languages, there is a striking tendency for grammatical convergence between the languages. Gumperz and Wilson (1971) have made a remarkable demonstration of this point in a study of Kupwar, a village in India where Urdu, Marathi, and Kannada have been maintained for centuries within a community of interacting speakers. Urdu and Marathi are Indo-European and Kannada is Dravidian. In Kupwar, however, the local variants of these three languages are virtually identical in their surface syntax and phonetics, while maintaining distinct vocabulary and morphophonemics. It seems that it is extremely difficult--if not impossible--to maintain seperate systems of psycholinguistic processing rules in situations of daily, continuing bilingualism.

Attempts by bilinguals to reduce two languages to one set of processing rules can be revealed over a very short time span. Donald Larmouth (1974), in a recent paper on four generations of Finnish speakers in Minnesota, has demonstrated such changes. For example, the system of Finnish inflections has been lost, requiring that Minnesota Finnish become a rigid SVO language. Note that this makes Finnish compatible with the sorts of word order perceptual strategies proposed for English by Bever. Weinreich (1953) reported a similar change in Slovenian under the influence of Italian in a bilingual situation. The fate of Finnish postpositions in Minnesota is also of interest: they move in position to become prepositions, on the English model.

Note that such a change is possible because Finnish and English are both SVO languages, and such languages can apparently function with either prepositions or postpositions. Presumably an SOV language could not accept a prepositional system without a concomitant change in basic word order.

What happens when very young children learn two languages of different types? There is some suggestive evidence that such children go through a stage of imposing similar ordering rules on both languages. The preschool bilingual child is not necessarily constrained by the interlocking set of syntactic patterns which characterize a language as to basic type, because

these patterns are defined across the whole linguistic system--for example, relating the positions of relative clauses, noun and verb modifiers, conjunctions, and so forth. Knowing only a part of each language, the young child is freer to violate typological constraints than an older speaker would be.[2] For example, Imedadze's (1960) daughter was learning Georgian--an ergative language, along with Russian--an accusative-type language. She went through a period of using the Georgian ergative suffix as if it was an accusative inflection, placing it on the word which would require an accusative inflection in Russian rather than the native ergative position. Malmberg's Finnish-speaking child, learning Swedish, used Swedish prepositions as postpositions, on the Finnish model (Malmberg, 1945; reported by Ervin-Tripp, 1973, p. 271). Note that in both of these cases, as in the Gumperz and Wilson Indian case, each of the two languages maintains its lexical material, but the position of grammatical markers results from application of a single set of production rules for both languages. Presumably such constraints on uniformity of processing strategies across languages account for the kind of widespread and significant grammatical change which has occurred historically in situations of long-term contact between languages differing in basic typological features.

Pidgin/Creole

Pidgin and creole situations can be used in two different ways to more precisely define the manner in which Language must adhere to the charge to be processible. On the one hand, an examination of the most elementary contact vernaculars can reveal the minimal grammatical equipment required to render Language humanly processible. Kay and Sankoff clearly state the goal of this sort of endeavor when they propose (1974, p. 62): "Since the communicative functions fulfilled by contact vernaculars are minimal, these languages may possibly reveal in a more direct way than do most natural languages the universals of cognitive structure and process that underlie all human language ability and language use." On the other hand, the changes brought about in conditions of creolization--when the communicative functions of a language system expand--can reveal the nature of more complex processing rules. I would like to explore each of these paths--first by considering a

minimal contact vernacular, Russenorsk, and then by looking at one aspect of a rapidly evolving creole, New Guinea Tok Pisin.

Russenorsk (Broch, 1927) was a trade language used between Russian merchants and Norwegian fishermen in the Arctic Ocean for at least one hundred years before 1917. It was used only during the brief summer trading period each year, for the minimal functions of trading fish for agricultural products. It provides a striking example of the basic perceptual cues which a language must provide in order to be processible. The parallels to very early child language are intriguing. There were no nominal inflections and a fixed SVO order. Although the difference between nouns and verbs could probably be identified on semantic grounds, the language had begun to evolve a general verbal suffix which served simply to mark the verb as such. Tense and aspect were indicated periphrastically. Subject and object were thus identified by word order, and verb by word order and verb marker. The only remaining perceptual problem was to differentiate noun-noun constructions as to underlying case relations. Two juxtaposed nouns were interpretable as expressing a genitive relationship, with fixed order of possessor-possessed. All other case relations between nouns were expressed by a generalized preposition, which could be interpreted as locational, directional, dative, and so forth, on the basis of the plausible semantic combinations of the two nouns, as you can see in the following examples. (The generalized preposition, po, is a merger of a very frequent and polysemous preposition in Norwegian and Russian. In these examples, content words are translated into English.)

Little money po pocket. 'Not much money in the pocket.'
Master po boat? 'Is the master on the boat?'
What you business po this day? 'What are you doing on this day [=today]?'
Po you wife? 'Is there by you a wife?' [=Do you have a wife?]
Steer po shore. 'Steer to shore.'
Speak po master. 'Speak to the master.'
How-many day po sea you? 'How many days were you at sea?'
How-much weight flour po one weight halibut? 'What quantity of flour in exchange for what quantity of halibut?'

There were a few basic question words, no conjunctions, no embedded constructions. So a language, to be processible, must at least have means of identifying nouns and verbs, and must provide means of distinguishing various case relations. This can be done with word order rules, one general

verbal marker, and one general preposition.

Now consider a pidgin language which is undergoing rapid enrichment as it expands to become a native language and the official language of a speech community. Gillian Sankoff is providing us with more and more fascinating information about New Guinea Tok Pisin, a version of pidgin English which has been acquiring native speakers before her very eyes (Sankoff & Laberge, 1973; Sankoff, 1974). As the language has become the medium of fluent, urban discourse, it has had to face the problem of making it clear to the listener where the boundaries are between embedded relative clauses and matrix sentences. The version of the language described by Sankoff has introduced a relative particle based on the deictic ia (derived from English here). The exciting thing about Sankoff's analysis of this innovation is her demonstration that the relative marker functions to keep speaker and listener cued in to the rapid flow of meaning in ongoing discourse. The particle serves as an auditory bracketing of the relative clause, and allows the speaker to check if the listener is aware of the bracketing. Consider the following examples (Sankoff, 1974):

Na pik ia [ol ikilim bipo ia] bai ikamap olsem draipela ston.
'And this (the) pig they had killed before would turn into a huge stone.'

Meri ia [em i yangpela meri, draipela meri ia] em harim istap.
'The girl, who was a young, big girl, was listening.'

Em wanpela America ia [iputim naim long en].
'It was an American who gave her her name.'

The particle functions both as a cue to the listener's perceptual strategies and as a device for the speaker to keep track of the listener's attention. The particle ia is a deictic element which can also be used simply to focus on the phrase to which it is attached. Once a phrase is brought into focus, however, additional information can be added, as in the above examples. This is a basic form of subordination, and the point of origin of the relative clause. Once the additional information has been given, the end of the interruption or subordination is marked by another occurrence of ia, often with rising intonation to allow the listener to indicate assent. The left-hand ia and the right-hand ia are clear guides to perceptual strategies, letting the listener know that an embedding has interrupted the matrix sentence. In fact, the right-hand ia can be omitted in sentence final position,

as in the third of the above examples, indicating that its special role as a perceptual marker is to return the listener to processing of the matrix sentence.

We know from psycholinguistic research with children that relative clauses are more easily processed if a relative particle is present, and adult psycholinguistic research has shown that the relative pronoun in English is an important guide to perceptual strategies (Fodor, Bever, & Garrett, 1974). It is indeed striking that an evolving language is constrained in similar fashion to introduce a marker of relative clauses. It is also striking that the device chosen--bracketing of the relative clause with discourse-based particles--is the same means used by Turkish children and Turkish colloquial speech to avoid the complexities of the Turkish relative clause. The Turkish equivalent of the first Tok Pisin example given above would be something like: "Well they killed a pig, huh? That pig would turn into a huge stone." What corresponds to a relative clause is bracketed by an introductory particle (originally a locative interrogative) focusing the listener's attention, and it is terminated by a particle, often with rising intonation to check the listener's attention. (It is pure chance that the right-hand particle in Turkish is ya!)

When a language is faced with the communicative need to use one proposition to modify part of another, it is apparently necessary to make sure that the listener knows when he is to be processing the main proposition and when he is to be processing the embedded proposition. In an established language the cues to relative clauses function below the level of consciousness to guide the perceptual strategies of the listener. In developing languages, however, it seems that it is the speaker who is aware that the listener may have difficulty in keeping track of the course of the utterance. It is significant that relative particles are often derived from deictic or interrogative words, as if the speaker were actively directing the listener's attention, by pointing and questioning, to the flow of information between propositions.

BE QUICK AND EASY

The charges to be clear and to be processible are constantly eroded by

an opposing charge--to be quick and easy. All of our skilled motor behavior is pulled by opposing tendencies to be precise and to accomplish a task without working too hard. Compare your elementary school handwriting with your present handwriting; or think of the first stages of learning to drive, or tie a shoe, or what have you. It has been widely noted that older children speak more quickly and fluently than younger children; that mastery of a foreign language is marked by increased speech rate; and that the speech rate of a creole is much more rapid than that of its ancestral pidgin language.

Why should mature communication be marked by repid tempo? Not only is there a natural tendency to minimize effort, but there is also a need to compact more information into a surface utterance, relating parts of the utterance to other propositions--implied, presupposed, or expressly communicated. The charge to be expressive, when fully developed, requires the speaker to communicate an elaborated message--a message which takes account of the background knowledge and involvement of the listener. As the surface density of the message increases, Language must provide more perceptual cues, like the relative markers I discussed earlier in relation to the second charge. At the same time, however, there is a conflicting tendency on the part of the speaker to reduce verbal emphasis on those markers in order to stress various aspects of the semantic message itself.

Child Language

Earlier on I spoke of children's tendencies to decontract, to put abnormal stress on grammatical functors, and so forth. But such acoustically striking reflections of attempts to maintain clarity quickly pass. It is as if a spotlight moves over each grammatical element: when a particular form is focused on in the course of development, the child is struggling to master it--an auxiliary, a negative particle, an inflection. With mastery, the light moves on. The grammatical form is now in the shadow, on the periphery of linguistic consciousness, joining into the rapid flow of un-self-conscious speaking.

History

From time to time in linguistic history, however, the process is not quite as smooth. The facts of phonological change are well known and have various origins and consequences. Sound change can wreak havoc with grammatical distinctions, producing unacceptable levels of homonymy or ambiguity when grammatical markers lose acoustic salience or sufficient distinctiveness from each other. For example, reduction of final syllables and stress on initial syllables has eroded Germanic inflectional systems, resulting in languages like our own, with their analytic word forms and word order rules. The cycle between analytic and synthetic, with concomitant restrictions on word order, has been well demonstrated. In the case of Egyptian (Hodge, 1970), where we have the incredibly great time depth of over 4000 years of data, the language has apparently completed the full cycle twice. The tension between the first and third charges to Language--clarity and speed--results in very rapid formal changes. For example, in less than two millenia Spanish has replaced the synthetic future tense of Latin with an analytic construction, as in amare habeo, and has reduced that innovation to a synthetic tense inflection, amaré.

Such phenomena, of course, make up the heart of introductory courses in historical linguistics. We still have a lot to learn, however, about the roles played in this sort of linguistic change by ontogenetic and pragmatic factors.

Pidgin/Creole

In the study of creole languages we are in an excellent position to locate the source and trace the development of changes in rate and compactness of expression. The most dramatic example, again, comes from Gillian Sankoff's study of New Guinea Tok Pisin (Sankoff & Laberge, 1973). She and Suzanne Laberge have examined ways in which Tok Pisin as a native language differ from its structure as a fluent second language. Native speakers of Tok Pisin are mainly under the age of 20, learning the language from non-native-speaking parents who use it as the common family language. The characterisation of child speech in Tok Pisin offered by Sankoff and Laberge is a cogent summary of adherence to the third charge to Language (pp. 35-6):

The children speak with much greater speed and fluency, involving a number of morphophonemic reductions as well as reduction in the number of syllables characteristically receiving primary stress. Whereas an adult will say, for the sentence "I am going home,"

(1) Mì gó lòng háus;

a child will often say

(2) Mì gò l:áus;

three syllables rather than four, with one primary stress rather than two.

Note that the parents are also fluent speakers. Apparently there is something about child speech, or the nature of a native language, which plays a leading role in bringing Language to adhere to the third charge.

As Tok Pisin became the medium for a wide variety of communications--such as parliamentary debates, newspapers, and radio--its grammar began to change. This change is accelerated in the speech of children acquiring Tok Pisin as a native language. For example, the future marker began as a sentence introductory adverb baimbai (from the English by and by). This marker became reduced to bai, moved within the sentence to preverbal position, and acquired obligatory status. At this point, the first and second charges are well adhered to: the preverbal tense marker is in a semantically clear position and is acoustically salient. The fact that it is obligatory probably aids perceptual strategies required for rapid speech processing, but this same fact runs counter to the charge to minimize effort and focus on message content. This third charge comes into play when baimbai is reduced to a single syllable, bai. In the speech of native Tok Pisin-speaking children, the particle tends to be reduced to bə and receives less stress than in adult speech. It is moving from a particle to an inflectional prefix, with the possible eventual fate of being swallowed up by the verb.

In this case, as in the case of the relative marker ia, Tok Pisin shows the evolution of grammatical markers in present-day time. This remarkable situation makes it possible to observe the natural course of construction of a grammar suited to carry out all four of the charges to Language. It seems, given the limited but suggestive evidence at hand, that it is adult speakers who invent new forms, using them with some degree of variability in their speech. Children, exposed to this variability, tend to make these new forms

obligatory and regular.

BE EXPRESSIVE

BE SEMANTICALLY EXPRESSIVE

I now want to turn to the fourth charge to Language: Be expressive. As I pointed out at the beginning, this charge has two aspects--one semantic and one rhetorical. The first aspect, to be semantically expressive, most broadly conceived means simply that utterances must make sense. That truism, of course, is hardly interesting. In the light of language development and change, though, some aspects of making sense seem to be more basic than others. Recent work in Linguistics (e.g. Traugott, 1973) and psycholinguistics (e.g. E. Clark, 1974) suggests that some notions may be more salient psychologically, whereas others may be more distant from the most natural or obvious manner of conceiving of events. The more salient or basic notions can be defined as those which are earliest to develop in childhood. These should also show the greatest degree of universality and should be best maintained across the various change situations we are considering here. I can only hint at a few of these notions for now.

Child Language

Eve Clark (1974) has proposed a model for language acquisition according to which the child first attempts to map linguistic forms onto pre-existing perceptual categories. For example, she proposes the following sort of strategy for determining meanings of concrete nouns and prepositions of spatial relations (p. 36):

> 'Pick out whatever seems to be the most salient characteristic(s) perceptually, and assume [until given counter-evidence] that that is what the word refers to. Act on this assumption whenever you want to name, request, or call attention to something.'

I think this strategy can be generalized from "perceptually salient characteristics" to "salient cognitive categories" generally. The particular cognitive categories I want to consider here relate to verbal notions of tense, aspect, and modality, because they appear across a number of change

situations. My approach, as before, will be to use ontogenetic data to determine a natural sequence, and then examine that sequence in historical, contact, and pidgin-creole situations.

Francesco Antinucci and Ruth Miller (1974), working in our laboratory at Berkeley, suggest that tense markers are first used to express aspectual notions. In Italian child speech, for example, the past participle is first used only to refer to the end state of some process, such as 'fall', 'close', 'break', 'burn', and the like. Verbs which describe states and activities with no clear end state, like 'walk', 'play', and 'sleep', are at first not used in the past tense. Similarly, in English data the first productive past tense forms are limited to events resulting in a present end state, like 'falled', 'spilled', and 'covered', while state verbs and activity verbs are still not used with a past tense inflection. The past tense seems to be used not to refer to the action of the subject prior to the utterance, but rather to focus on the perceptible end state of the object. Only later can the child shift his attention from the current state of affairs to the antecedent determining event, and extend the inflection to refer to past time generally. Other studies, such as those by Bronckart and Sinclair (1973) and Ferreiro (1971) in French, and Baron (1972) in English, have also revealed the early saliency of aspectual notions such as duration, repetition, inception, and conclusion of events.

To return to Eve Clark's approach, the first meanings to be acquired should be closest to the child's non-linguistic strategies for representing events to himself. She suggests that such meanings "can be regarded as cognitively simpler than others" (1973, p. 180). To extend this very schematic argument, we should observe a saliency of means of expressing aspect over tense in other situations of language change, with the expectation that expressions of aspect should develop before expressions of tense.

History

In the realm of language change, the evolution of Italian from Latin seems to parallel the present-day ontogenesis of Italian (Antinucci and Miller, 1974, p. 26). When the Latin past tense inflection was lost, due to phonological change and other factors, a periphrastic perfect tense was introduced, at first serving only the limited function of referring to the

end state of a completed process. Only later was this form extended to refer to the location of processes in the past. Within the history of Indo-European generally, there is evidence that the aspectual opposition between perfective and imperfective preceded the development of temporal opposition (Bronckart & Sinclair, 1973, p. 128), suggesting even greater generality of the cognitive saliency of aspect over tense. Apparently when a new form enters a language its range of meaning is likely to be restriced to what Clark calls a "cognitively simpler" core. The extension of meaning from that core must also follow natural cognitive patterns, whether occurring in ontogensis or in other diachronic linguistic processes.

Contact

In language contact situations, grammatical borrowing should be most probable if a language is weak in formal means to express a salient semantic notion, again using ontogenetic order of acquisition as an index of cognitive saliency. For example, a periphrastic means of expressing a salient category may be replaced by an inflectional marking, on the model of a contact language. This is apparently what happened to Bulgarian in contact with Turkish (Galton, 1967). Turkish has an inferential modality to refer to non-witnessed events. This form is easily mastered by two-year-old Turkish children, suggesting that it is a salient notion. Bulgarian developed a verbal conjugation to refer to non-witnessed events, enriching the adverbial or periphrastic means previously available. Presumably a language gains in expressiveness if a salient notion can be expressed by an obligatory surface marker, and notions of modality are best marked on the verb. Under constraints of the charge to be processible, however, Bulgarian could not borrow the infix used in Turkish, but devised a Slavic verbal suffix, consistent with the typological characteristics of Bulgarian. Apparently Turkish suggested to Bulgarian that this salient category could be expressed inflectionally on the verb.[3]

There is also some evidence from language contact situations for the saliency of aspect. Yiddish (Baviskar, 1974), a Germanic language spoken on Slavic territory, developed an elaborated non-Germanic aspectual system along the lines of the well-developed Slavic system. (The suggestion of the accessibility of aspectual notions to children is also supported by the

apparent ease with which Slavic-speaking children acquire this portion of their grammar [Radulovic, 1975].)

My knowledge of grammatical transfer in contact situations is scanty. But I would expect that factors of cognitive simplicity or saliency, established in ontogenetic studies, would play a leading role in predicting the possibility of interlingual borrowing or modeling.

Pidgin/Creole

Kay and Sankoff have a very clear statement on the role of saliency in accounting for the initial set of grammatical markers in a pidgin and the course of elaboration of grammar with depidginization. I would like to quote their statement, with the psycholinguistic footnote that the sort of ordering they suggest should eventually correspond to a universal ontogenetic ordering (Kay and Sankoff, 1974, p. 69):

> Given the hypothesis that there is a certain basic (and small) set of underlying semantic notions which are always grammatically marked, even in the most reduced contact vernaculars, and that as communicative functions increase, other markers are introduced, it is possible that in the development of contact vernaculars there exists an ordering in the introduction of such additional markers. For example, prepositions may be ordered such that when a pidgin has only two, one marks genitive and the other has a generalized locative function, with specific locatives (e.g. in, on, under) coming later; location may be marked earlier than time; proniminal systems may mark person and number before they mark gender or case, and so on. The general point is that certain semantic notions which may be more psychologically salient or functionally necessary or both are grammatically marked earlier than others. Contact vernaculars at various stages of development may provide evidence for verifying such notions of universal saliency or function.

Derek Bickerton (1975), along lines similar to those developed by Elizabeth Traugott (1973), has proposed a "natural semantax" which can be revealed in the development of creoles. He specifically proposes a creole tense-aspect system which has apparently arisen independently in unrelated creolizing situations, hypothesizing that this system is a natural reflection

of "specific neural properties of the human brain." It is of interest to me that this tense-aspect system is not concerned with the time-line of past-present-future, but, like the child language studies I have mentioned, reflects a concern with such matters as repetition and duration of events and the distinction between states and processes.

Bickerton proposes several basic cognitive prerequisites for such a tense-aspect system, and they are all well-attested in psychological studies of cognitive development (1975, p. 39):

> In order to operate [the creole tense-aspect system] a speaker needs to be able (a) to know the order in which past events occurred (b) to distinguish between sensory input and the product of his imagination (c) to tell whether something happened once only, or was either repeated or protracted in some way (d) to distinguish states from actions.

This sounds like a description of the cognitive bases for development of temporal notions abstracted from specific even characteristics. And apparently as a creole language becomes more fully developed, aspect markers such as these expand to become tense markers. For example (Labov, 1971), in Hawaiian creole a particle (wen) which began as a perfective aspect marker referring to completed past actions has become a general past tense marker.

* * *

Where can one go with such intriguing parallels between widely separated instances of linguistic change? The issue is clearly not one of cognitive development alone, since I have argued that the saliency of aspect over tense can be demonstrated in adult language change as well as in ontogenesis. I suspect that we will find a large part of the answer when we have a better understanding of the communicative functions of tense and aspect in different sorts of discourse situations. The important feature of grammatical tense is that it encodes a temporal relation between the referent situation and the moment in which the utterance is spoken. This is inherently a discourse phenomenon, as opposed to distinctions of aspect and modality, which describe features of events independent of the situation of the ongoing discourse. The communication of tense is apparently necessary only when a speech system is used between speakers of a certain level of maturity for a certain range of functions. I am vague here because I have not thought sufficiently about these matters, but the basic distinction I

am proposing is one between salient or basic categories of perception and cognition, which will be encoded in all forms of Language--including preschool and pidgin speech systems--and more elaborated distinctions, resting on more complex cognitive processes, and required for mature and stylistically differentiated communication.

BE RHETORICALLY EXPRESSIVE

The notion of stylistically differentiated communication brings us to the final charge--the charge to be rhetorically expressive. It is this charge, especially, which requires the complexity of grammar. It is no accident that a developing language like Tok Pisin should have to find means of encoding relative clauses, while a contact vernacular like Russenorsk or a two-year old speech system can manage without such means. In order for Language to be rhetorically expressive it must be possible to present information in a variety of ways, focusing on this or that, guiding or checking the listener's attention, distinguishing between what is new or old information, expected or unexpected statement, and so forth. Gillian Sankoff, in discussing the origins of the ia particle, provides clear examples of this expressive goal of language. She notes that (1974, pp. 13, 14):

> . . . ia placed after a noun or pronoun has the function of focusing on that element, often in contrast to some other referent which might also have been referred to by that noun or pronoun. . . .
>
> In emphasizing and focusing on the element it qualifies, ia provides a slot for further information about the element in question to be included if necessary. This information is basically of two sorts: first, information presumed by the speaker to be in the category of "shared knowledge" between him/herself and the conversational partner(s). Such information may be presumed to be shared either because it has been mentioned or given earlier in the same conversation, or because for other reasons (e.g. common background) it is assumed to be shared... [ia] bracketing provides a device for the issue of sharedness to be interactionally negotiated, in cases where there may be some doubt

about whether or not the information supplied is shared in ways sufficient to adequately (and uniquely) identify the referent.

Note how much of this description of the use of ia assumes that the speaker is taking the role of his listener, actively programming his speech to be effective and intelligible in a given discourse situation. Early child speech and contact vernaculars are used in a limited range of contextually dependent interactions. There is little or no need to talk about what is not apparent; nor, I would expect, is there much motivation to explore and monitor the possible inner states of the listener. This is true, to a certain extent, of conversations between adults and two or three year old children; furthermore, the young child's limited ability to "decenter" in the Piagetian sense precludes much of the discourse dynamics summarized by Sankoff.

It is striking to consider the extent to which grammar functions especially to fulfill rhetorical needs. Most studies of child language comprehension put the child into a situation where there are no contextual cues to the meanings of utterances, but, in real life, there is little reason for a preschool child to rely heavily on syntactic factors to determine the basic propositional and referential meaning of sentences which he hears. Judith Johnston and I have gone through transcripts of adult speech to children between the ages of two and five, in Turkish and English, looking for sentences which could be open to misinterpretation if the child lacked basic syntactic knowledge, such as the roles of word order and inflections. We found almost no instances of an adult utterance which could possibly be misinterpreted. That is, the overwhelming majority of utterances were clearly interpretable in context, requiring only knowledge of word meanings and the normal relations between actors, actions, and objects in the world. Why, then, should the child learn to cope with the complexities of varying word orders in Turkish, or cleft and passive sentences in English, and the like? Partly, of course, it could be because the child simply can't help paying attention to and assimilating grammatical detail: That is the nature of the machine. And some knowledge of grammar is necessary in order to be able to segment incoming speech into clauses for deeper analysis. But more of the answer may lie in the importance of grammar for directing and focusing

attention in discourse--both for the child as listener and as speaker. His eventual mastery of grammatical complexities may be attributable, to a large extent, to a growing need to comprehend expressive aspects of messages and to communicate expressively--that is, to direct his listener's attention skillfully in a discourse, trying to maintain interest, attention, and understanding. There is some evidence, for example, that the emergence of grammatical devices is directly tied to emerging abilities to topicalize or focus. Brian MacWhinney (1975) and Elizabeth Bates (1974), for example, suggest that the first use of word order in child speech (at least in Hungarian and in Italian) is for pragmatic focus, rather than the expression of underlying grammatical or semantic relations.

It remains to spell out in more detail the role of rhetorical factors in child language, language contact and change, and pidgin and creole situations. For now I want to simply point out that, in general, it is the charge to be expressive which introduces much of grammatical complexity into Language. A pidgin language, as I have pointed out in the extreme case of Russenorsk, like a two or three year old language, admirably fulfills the first two charges to Language. But when a language acquires a broad range of communicative functions--either through maturity of its speakers, in the case of an established language, or depidginization and creolization in the case of pidgin languages--it loses this enviable clarity. Why should communicative needs require grammatical complexity? Apparently grammar develops--both in creoles and in children--to fulfill more communicative needs than the direct expression of propositional content. Adherence to the first two charges alone would produce a language in which the range of surface expressions for each underlying semantic configuration would be extremely limited. As such, ongoing speech would be as close to a series of underlying propositions as possible, given the time constraints on processing. But speech in the settings of mature and developed communication requires more. As Labov (1971, p. 72) has pointed out, grammar is not just a tool of logical analysis. In his words: "grammar is busy with emphasis, focus, down-shifting and up-grading; it is a way of organizing information and taking alternative points of view." From the point of view of developmental psycholinguistics we would do well to study the emergence of such communicative functions of speech in children in order to obtain a fully coherent view of linguistic development.

* * *

I began with the goal of defining Language by studying it in its unstable and changing phases. I want to close by emphasizing that this goal cannot be achieved without attending to the complex and contradictory pressures of four different charges to Language. A fully developed human language must be pragmatically flexible, semantically expressive, rapid in tempo, readily decipherable, and semantically clear. Children have the capacity to construct such languages, and the human mind has the capacity to consistently maintain and adjust Language so that it remains in consonance with all of these goals. Watching Language move through time, it becomes clear that the more it changes the more it remains the same.

FOOTNOTES

1. This paper is a revised version of a paper entitled "The more it changes. . . On understanding Language by watching it move through time," delivered as the Keynote Address to the Stanford Child Language Research Forum (April 4, 1975), and presented to the Conference on Language Learning and Thought organized by John Macnamara with support from the Canada Council (McGill University, Montreal, May 19-22, 1975). Work on the paper was supported, in part, by a grant from the Grant Foundation to the Institute of Human Learning ("Cross-Linguistic Study of Language Acquisition"; Dan I. Slobin, Principal Investigator) and by support from the National Institute of Mental Health to the Language-Behavior Research Laboratory, Department of Anthropology, University of California at Berkeley. Many students and collegues contributed to my development of the ideas presented here. Special thanks go to Paul Kay and Gillian Sankoff, who first involved me in the study of pidgin and creole languages; and to Judith Johnston and Bambi Schieffelin, who helped me understand what I was trying to say.

2. This claim should be investigated in developmental studies. My argument here is that typological consistencies within a given language are formed by a complex interplay of processing constraints and efficiency pressures across a large range of linguistic forms. Kuno (1974), for example, shows that prenominal positioning of relative clauses in SOV languages and postnominal positioning of relative clauses in VSO languages acts to minimize (but not abolish) the occurrence of center-embedded structures (which impose a burden on sentence processing). But for this phenomenon to have an effect on the individual, he must be mature enough to produce a variety of complex sentence types. In addition, Kuno shows how similar considerations account for the positioning of conjunctions and question words, the use of pre- or postpositions, and the presence or absence of relative pronouns. It may be that the child must command a range of linguistic forms before the psycholinguistic pressures for typological consistency exert an influence on his language. On the other hand, the child may be sensitive at quite an early age to the interrelations between positional constraints in his language.

For example, having acquired SOV order and postpositions, the child may "expect" or at least feel most comfortable with prenominal positioning of relative clauses.

The examples given in the paper are of bilingual children. This issue would be very difficult to investigate in monolingual acquisition of a typologically consistent language, since errors in positioning of grammatical elements tends to be infrequent. However, much could be learned from investigation of the acquisition of typologically inconsistent languages, that is, those languages presently in the process of change from one basic word order type to another. For example, Amharic is apparently in a late stage of change from VSO to SOV, presumably under the influence of Cushitic languages (Bach, 1970; Little, 1974). As a result, there are both pre- and postpositions, and even constructions of preposition-noun-postposition. One would expect children to prefer postpositional structures and to omit prepositions. Generally, the research strategy would be to predict that children will find it easier to learn to place grammatical forms in positions consistent with the basic word order of the language.

3. The notion that some formal means of expression are "weaker" than others deserves elaboration. The Bulgarian-Turkish situation suggests that inflectional marking is somehow preferable to adverbial or clausal marking, and that obligatory marking is preferable to optional--at least for the more salient notions. A similar argument could be made in regard to the evolution from baimbai to bə- in Tok Pisin. Just as this approach requires a hierarchy of cognitive notions in terms of saliency or naturalness, it requires a hier- of means of formal expression in terms of ease of acquisition and processibility.

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